

WHAT IS CLAIMED IS:

1                   1.       A device for applying a magnetic field to a microtiter plate, said  
2 device comprising:  
3                   a substrate; and  
4                   a plurality of magnetic elements disposed on said substrate, wherein said  
5 plurality of magnetic elements are arranged parallel to each other such that the longitudinal  
6 axis of each magnetic element is approximately centered under a row or column of wells of a  
7 microtiter plate when said microtiter plate is positioned upon the device.

1                   2.       The device of claim 1, wherein said substrate is comprised of a  
2 material selected from the group consisting of polymers, plastics, pyrex, quartz, resins,  
3 silicon, silica, silica-based materials, carbon, metals, inorganic glass and combinations  
4 thereof.

1                   3.       The device of claim 1, wherein said substrate is comprised of a  
2 material selected from the group consisting of organic, inorganic, biological, nonbiological  
3 materials and combinations thereof.

1                   4.       The device of claim 1, wherein said substrate is substantially disc-  
2 shaped, square-shaped, rectangle-shaped or combinations thereof.

1                   5.       The device of claim 1, wherein said substrate has substantially the  
2 same shape and size as said microtiter plate.

1                   6.       The device of claim 1, wherein the device comprises one magnetic  
2 element for each column of wells of the microtiter plate.

1                   7.       The device of claim 1, wherein the device comprises twenty-four  
2 magnetic elements and the longitudinal axis of each element is approximately centered under  
3 a column of wells of a 384-well microtiter plate.

1                   8.       The device of claim 6, wherein each magnetic element is  
2 approximately the same length of a column of wells of the microtiter plate.

1                   9.       The device of claim 1, wherein the device comprises one magnetic  
2 element for each row of wells of the microtiter plate.

1                   10.     The device of claim 9, wherein the device comprises sixteen magnetic  
2 elements and the longitudinal axis of each element is approximately centered under a row of  
3 wells of a 384-well microtiter plate.

1                   11.     The device of claim 9, wherein each magnetic element is  
2 approximately the same length of a row of wells of the microtiter plate.

1                   12.     The device of claim 1, wherein adjacent magnetic elements are in  
2 contact with each other.

1                   13.     The device of claim 1, wherein adjacent magnetic elements are  
2 separated from one another by a non-magnetic material.

1                   14.     The device of claim 1, wherein each magnetic element is  
2 approximately as wide as the diameter of a well of the microtiter plate.

1                   15.     The device of claim 1, wherein the device does not include a  
2 mechanism for horizontal circular translation of the microtiter plate.

1                   16.     The device of claim 1, wherein the device further comprises a  
2 microtiter plate positioned upon the magnetic elements.

1                   17.     The device of claim 16, wherein one or more wells of the microtiter  
2 plate contains a suspension of magnetic particles.

1                   18.     The device of claim 17, wherein the suspension comprises  
2 immunoassay reagents.

1                   19.     The device of claim 17, wherein the suspension comprises a primer  
2 extension reaction.

1                   20.     The device of claim 19, wherein the primer extension reaction is a  
2 DNA sequencing reaction.

1                   21.     The device of claim 19, wherein the suspension comprises dye-labeled  
2 molecules and a polymer into which dye-labeled molecules are incorporated, and particles

3 that comprise a paramagnetic moiety and a porous hydrophobic material entrapped within a  
4 hydrophilic matrix.

1 22. A method for removing unincorporated dye-labeled molecules from a  
2 mixture that comprises the dye-labeled molecules and a polymer into which dye-labeled  
3 molecules are incorporated, the method comprising:

4 a) contacting the mixture with a plurality of particles that  
5 comprise a paramagnetic moiety and a porous hydrophobic material  
6 entrapped within a hydrophilic matrix;

7 b) mixing and incubating the mixture and the particles for a  
8 sufficient time for dye-labeled molecules that are not incorporated into the  
9 polymer to pass into the hydrophilic matrix and become adsorbed onto the  
10 hydrophobic material;

11 c) placing a microtiter plate of which one or more wells contains  
12 the mixture upon a device that comprises a plurality of magnetic elements  
13 which are arranged parallel to each other such that the longitudinal axis of  
14 each magnetic element is approximately centered under a row or column of  
15 wells of the microtiter plate, thereby concentrating the particles on a surface  
16 of the microtiter plate wells; and

17 d) removing the liquid phase from the wells, thus leaving behind  
18 the adsorbed unincorporated dye-labeled molecules.

1 23. The method of claim 22, wherein the mixture comprises a primer  
2 extension reaction.

1 24. The method of claim 23, wherein the primer extension reaction is a  
2 DNA sequencing reaction.

1 25. The method of claim 24, wherein the polymers are polynucleotide  
2 molecules and the dye-labeled molecules are dye-labeled dideoxynucleotides.